REMARKS/ARGUMENTS

I. Introduction:

Claim 20 is amended and claim 21 is added herein. With entry of this amendment, Claims 1-21 will be pending.

II. Claim Rejections – 35 U.S.C. 101:

Claim 20 has been amended to specify a computer-readable medium storing computer executable instructions, as suggested by the Examiner.

As amended, claim 20 is believed to comply with the requirements of 35 U.S.C. 101.

III. Claim Rejections – 35 U.S.C. 102:

Claims 1-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,965,942 (Young et al.) and further in view of U.S. Patent No. 6,674,730 (Moerder).

Young et al. describe a system for improving throughput over WLANs with mode switching. The system sets a contention window value that is lower than that set by the IEEE 802.11 standard. Factors considered in determining the load and establishing the contention window include number of transmissions, number of receptions, and number of collisions. Young et al. do not measure link delays between a root bridge and non-root bridges. In rejecting the claims, the Examiner refers, for example, to claim 1 (col. 10, lines 45-67). Claim 1 describes measuring a load of traffic and includes determining a number of transmissions, and number of collisions. These measurements are performed to determine the overall load conditions of the network, rather than specific condition (such as link delay) between two points in the network. The Examiner even notes that Young et al. do not specifically show link delays.

Since Young et al. do not measure link delays, there is no use of link delays to coordinate transmissions. Furthermore, Young et al. do not use any type of measurement to coordinate transmissions. As noted above, Young et al. use load conditions to establish a contention window, which is used to determine a backoff period (delay). Young et al. improve throughput by reducing the contention window, and thus the delay. In a lightly loaded network, the delay can be reduced without increasing collisions. Young et al. are concerned only with network load. In contrast to Young et al., applicants' invention uses a measurement to coordinate transmissions. The coordinated transmissions between the root bridge and plurality of non-root bridges reduce the probability of collisions. For example, the measured link delays may be used to align contention time boundaries and modify system time slot to reduce packet collision probability and thus improve overall system throughput. Applicants' invention improves throughput by coordinating transmissions based on the measured link delay, whereas Young et al. improve throughput by reducing delay.

The Moerder patent is directed to a method and apparatus for time synchronization in a communication system. In order to synchronize remote units to a common time, a hub station periodically sends a timing indication. When the remote unit receives a time indication from the hub station, it sets the transmission clock equal to the time indication advanced by the determined transmission delay. A time offset between the time of receipt of a time tag transmission and a predetermined absolute time indicates an error in estimating a forward link delay associated with forward link channels as perceived by the remote unit.

The Examiner has failed to identify any disclosure of measuring link delays and using these measured link delays to coordinate transmissions in a CSMA/CA scheme, as set forth in the claims.

Even assuming, for the sake of discussion, that one would look to Moerder to modify Young et al., this would not necessarily lead to Applicants' invention. In particular, the invention defined by claim 1 requires the use of measured link delays to coordinate transmissions in a CSMA/CA scheme. Young et al. use load conditions to

determine if they can reduce a backoff period, and thereby improve throughput. A timing indication used by Moerder would not help Young et al. determine load conditions, and therefore would not be used to establish a new backoff period.

Applicants' invention as set forth in the claims is particularly advantageous in that it adapts IEEE 802.11 techniques to networks with larger propagation delays, such as campus point-to-multipoint wireless networks.

Accordingly, claims 1, 8, 9, and 19, and the claims depending therefrom, are submitted as patentable over the cited references.

Claims 2-4 are further submitted as patentable over the cited references, which do not disclose calculating a common time slot value based on measured link delays, distributing measured link delays and common time slot values, or aligning contention timing boundaries on measured link delays and common time slot values.

With regard to claim 2, the Examiner refers to col. 7, lines 22-55 and col. 8, lines 12-67. Col. 7 describes conventional CSMA/CA contention based on IEEE 802.11 CF access mechanism. Col. 8 describes a virtual carrier sense mechanism of IEEE 802.11. There is no teaching of calculating a common time slot value based on measured link delays.

Since there is no teaching of measuring link delays, the references do not disclose distributing measured link delays or aligning contention timing boundaries based on measured link delays and common time slot values, as set forth in claims 3 and 4, respectively.

With regard to claim 5, Moerder uses a timing indication signal that is received by a remote unit. It is the remote unit that monitors a signal from the hub to determine when to synchronize. The hub does not perform any measurements.

Claim 7 is further submitted as patentable because neither reference teaches giving access preference to more distant non-root bridges.

Claims 10-16, 17, and 18 are directed to an apparatus for operating or node or a point-to-multipoint wireless communication network, and are submitted as patentable for at least the reasons set forth above.

Claims 11-13 are further submitted as patentable for the reasons discussed above with respect to claims 2-4.

New claim 21 specifies that coordinating transmissions comprises adjusting a network allocation vector time. As discussed above, Young et al. establish a new contention window value. None of the cited references show or suggest using any factor to adjust a network allocation vector time to coordinate transmissions in a CSMA/CA scheme.

IV. Conclusion:

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,

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